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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,989	09/26/2005	Daniel Zauner	3926.135	6988
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EXAMINER				
JENNISON, BRIAN W				
ART UNIT		PAPER NUMBER		
4184				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/526,989

Applicant(s)

ZAUNER ET AL.

Examiner

BRIAN JENNISON

Art Unit

4184

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/86)
Paper No(s)/Mail Date 7/19/2006, 10/31/2007
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claim 8 is rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

*Claim 8 states "A method as in claim 7, wherein the surface from which said least one topographical change protrudes is the **side facing the laser**." The claimed subject matter "side facing the laser" is not disclosed in the specification.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claim 8 is rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. Claim 8 recites the limitation "side facing the laser" in claim 7 there is no mention of the "side facing the laser." There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 1, 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over FUJIMOTO et al (JP 2002-178178 A cited by applicant) in view of ISO et al (JP 2000-301374 A cited by applicant).**

Fujimoto et al teaches (re claim 1) a laser lap welding method in which a protrusion 2a is formed, by melting, on the side sheet 2 facing away from laser 1. (See Drawing 1 and Paragraphs [0018]—[0020]) (re claim 3) the protrusion on the side facing away from the laser is welded to a second sheet so that the zinc vapor can escape through the gap formed by the protrusion. (See Drawing 2 and Paragraphs [0021]-[0024]) (re claim 4) the sheets 2 and 3 are fused together by welding which is

performed by a second laser so the weld line is the same line as protrusion 2a. (See Paragraph [0026])

The case of claim 1 "the laser beam describes about the center of its machining area a narrowing spiral" is not given patentable weight since it is referred to in an alternative form. Therefore claims 5 and 6 are not given patentable weight since they refer to the alternative case of claim 1. MPEP 2111.04 states "Claim scope is not limited by claim language that suggests or make optional but does not require steps to be performed, or by claim language that does not limit a claim to a particular structure."

Fujimoto et al fails to teach (re claim 1) a laser directing a laser beam onto the surface by means of a scanner device.

Iso et al teaches (re claim 1) a scanner for directing the laser beam wherein "a laser beam is introduced into the 1st galvanoscanner 14, and while branching introduces the laser beam of another side into the 2nd galvanoscanner 16 by the mirror 15. The structure of galvanoscanner is provided with the 2nd galvanomirror for making the laser beam from the 1st galvanomirror and this 1st galvanomirror for making a laser beam shake at an X axial direction shake at Y shaft orientations further as everyone knows. Thus, the laser beam which came out of the 1st and 2nd galvanoscanner is irradiated on the work 20 through the ftheta lenses 17 and 18, respectively." (See Paragraph [0013])

In view of Iso et al's teachings it would have been obvious to one of ordinary skill in the art at the time of the invention to include, the scanner means for directing the laser beam, since it is known in the art that a scanner device can be used for directing a laser beam to provide a greater working speed of the laser beam (see paragraph 5, 9 and 31 of Iso et al).

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al as modified by Iso et al as applied to claims 1, 3-4 above, and further in view of Milewski et al (US Patent No. 5,760,365).

The teachings of Fujimoto et al as modified by Iso et al have been discussed above.

Fujimoto et al as modified by Iso et al fails to teach (re claim 2) the method in claim 1 wherein the laser beam is not focused upon the surface.

Milewski et al teaches (re claim 2) "The changes in focal position shown in Table 3 were modeled for the V-groove weld joint geometry shown in FIGS. 9A, 9B and 9C. In these simulations the focal spot size was smaller than the joint gap at the surface having focus depths of 0.00", 0.05" and 0.10", respectively. (See column 12, lines 20-25) "Focusing above the surface of the aluminum part" (See column 12, lines 33-34)

In view of Milewski et al's teachings it would have been obvious to one of ordinary skill in the art at the time of the invention to focus the laser beam at a point other than at the surface of the material to melt one side of the material, since it is known in the art to defocus the laser beam in an analogous process for the same purpose.

10. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto in view of Leong et al (US Patent No. 6,329,635).

The teachings of Fujimoto et al have been discussed above

Fujimoto et al fails to teach (re claim 7) wherein said melting through is controlled by pre-specifying the processing time or by providing a penetration sensor which regulates the laser machining time.

Leong et al teaches (re claim 7) a method for weld and laser heat treatment monitoring which involves determining depth penetration wherein the machining time can be controlled. ("To determine weld penetration from the weld monitor signal, a calibration curve is required. This curve can be constructed for a particular component from test welds made by varying the laser power level at constant speed. Defects are often caused by changes in beam power and part geometry rather than speed. After

sectioning and polishing, the weld penetration can be measured and correlated with the DC signal from the weld monitor. Using the design specifications for the component of interest, upper and lower control limits could be determined for process monitoring."

See column 9, lines 33-43)

In view of Leong et al's teachings it would have been obvious to one of ordinary skill in the art at the time of the invention to include, a penetration sensor for controlling the laser machining time since, it is known in the art that a sensor can be used in a laser welding or machining method measuring penetration and using this data to control machining or welding time.

The case of claim 1 "the laser beam describes about the center of its machining area a narrowing spiral" is not given patentable weight since it is referred to in an alternative form. Therefore claims 5 and 6 are not given patentable weight since they refer to the alternative case of claim 1.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Alips et al (US Patent No. 6,914,213) teaches an analogous method wherein the laser beam is focused above and below the surface of the sheet.

Spies et al (US Patent No. 5,104,032) teaches an analogous method.

Wang et al (US Patent No. 6,646,225) teaches a method for machining then welding galvanized steel using a laser beam.

Wais et al (US Patent No. 7,123,632) teaches an acousto-optical modulator in a laser beam source.

Burrows et al (US Patent No. 5,434,880) teaches an acousto-optical modulator enabling an optical head.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN JENNISON whose telephone number is (571)270-5930. The examiner can normally be reached on M-Th 7:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jared Fureman can be reached on 571-272-2391. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BRIAN JENNISON/
Examiner, Art Unit 4184

/Jared J. Fureman/
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